



Atty. Dkt. No. 023971-0407

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Takahiro HAMADA *et al.*
Title: FUEL INJECTION VALVE
Appl. No.: 10/823,773
Filing Date: 04/14/2004
Examiner: Unassigned
Art Unit: 3747

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

RELEVANCE OF EACH DOCUMENT

Document B701 is a doctoral dissertation entitled "Tribological Properties of Hydrogenated and Hydrogen-Free Diamond-Like Carbon Coatings."

Documents B1-B468 were identified in a patent/literature search requested by Applicants.

Document B469 is a copy of the search results which identified documents B1-B468.

Documents B470-B649 were cited in corresponding U.S. applications.

Documents B650-B687 are other documents known to Applicants.

Documents B688-B700 are Applicants' related applications that were not already identified in documents B1-B687.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Respectfully submitted,

Date 1/19/06

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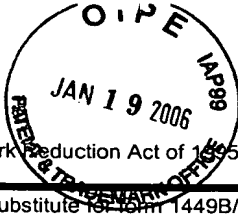
Registration No. 25,479

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Attorney for Applicants

Registration No. 47,369

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.



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Sheet 1 of 28

Complete if Known

Application Number	10/823,773
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Group Art Unit	3747
Examiner Name	Unassigned
Attorney Docket Number	023971-0407

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
	B1	6,468,642	B1	Bray et al.	10-22-2002	
	B2	6,205,291	B1	Hughes et al.	03-20-2001	
	B3	6,822,788	B2	Blitstein	11-23-2004	
	B4	6,592,519	B1	Martinez	07-15-2003	
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	B41	6,139,964		Sathrum et al.	10-31-2000	
	B42	6,016,000		Moslehi	01-18-2000	
	B43	5,947,710		Cooper et al.	09-07-1999	
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		Number	Kind Code ² (if known)			
	B81	5,401,543		O'Neill et al.	03-28-1995	
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	B83	5,332,348		Lemelson	07-26-1994	
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		Number	Kind Code ² (if known)			
	B121	2003/0069632	A1	De Scheerder et al.	04-10-2003	
	B122	2003/0037640	A1	Griffin et al.	02-27-2003	
	B123	2003/0036341	A1	Myoung et al.	02-20-2003	
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	B161	6,293,648	B1	Anderson	09-25-2001	
	B162	6,274,220	B1	Tsukuda et al.	08-14-2001	
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**INFORMATION DISCLOSURE
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Date Submitted: January 19, 2006

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Sheet 6 of 28

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Application Number	10/823,773
Filing Date	April 14, 2004
First Named Inventor	Takahiro Hamada
Group Art Unit	3747
Examiner Name	Unassigned
Attorney Docket Number	023971-0407

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Date Submitted: January 19, 2006

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Application Number	10/823,773
Filing Date	April 14, 2004
First Named Inventor	Takahiro Hamada
Group Art Unit	3747
Examiner Name	Unassigned
Attorney Docket Number	023971-0407

Sheet	7	of	28
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	B237	WO	00/56393	A1	Second Sight, LLC	09-28-2000		
	B238	WO	00/47402	A1	Advanced Refractory Technologies, Inc.	08-17-2000		
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	B241	WO	00/78504	A1	Speedfam-IPEC Corporation	12-28-2000		
	B242	WO	03/013990	A1	Stapell/Guider Corporation	02-20-2003		
	B243	WO	03/091758	A2	Sabeus Photonics, Inc.	11-06-2003		
	B244	WO	00/44032	A1	N.V. Bekaert SA	07-27-2000		
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	B246	WO	03/076309	A2	Frost Links, Inc	09-18-2003		
	B247	WO	02/062714	A2	Honeywell, Inc.	08-15-2002		
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Sheet 8 of 28

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Application Number	10/823,773
Filing Date	April 14, 2004
First Named Inventor	Takahiro Hamada
Group Art Unit	3747
Examiner Name	Unassigned
Attorney Docket Number	023971-0407

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	B263	WO	99/16371	A1	Boston Scientific Corporation	04-08-1999		
	B264	EP	0392125	B1	Shin-Etsu Chemical Co., Ltd.	03-10-1993		
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Sheet 9 of 28

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Application Number 10/823,773
 Filing Date April 14, 2004
 First Named Inventor Takahiro Hamada
 Group Art Unit 3747
 Examiner Name Unassigned
 Attorney Docket Number 023971-0407

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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
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				Filing Date	April 14, 2004
				First Named Inventor	Takahiro Hamada
				Group Art Unit	3747
				Examiner Name	Unassigned
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Sheet	10	of	28		

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	B331	WO	2004/084773	A1	Feiwell, Lawrence, M., D.	10-07-2004		
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	B333	WO	2004/072959	A2	Intevac, Inc.	08-26-2004		
	B334	WO	2004/071670	A1	Scion Sprays Limited	08-26-2004		
	B335	WO	2004/038701	A2	Barnes et al.	05-06-2004		
	B336	WO	2004/036292	A2	Intellimats, LLC.	04-29-2004		
	B337	WO	2004/036169	A1	Helix Technology Corporation	04-29-2004		
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Sheet 11 of 28

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Filing Date	April 14, 2004
First Named Inventor	Takahiro Hamada
Group Art Unit	3747
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	B343	EP	1445119	A1	Fuji Photo Film Co., Ltd.	08-11-2004		
	B344	EP	1378271	A1	Mizuno Corporation	01-07-2004		
	B345	EP	0862395	B1	Wright Medical Technology, Inc.	04-07-2004		
	B346	EP	0842754	B1	Toray Industries, Inc.	03-31-2004		
	B347	EP	1078736	B1	Fuji Photo Film Co., Ltd.	01-28-2004		
	B348	WO	2003/095009	A1	Perlos OYJ	11-20-2003		
	B349	WO	2003/046508	A3	Biomicroarrays, Inc.	06-05-2003		
	B350	WO	03/021731	A1	Cymer, Inc.	03-13-2003		
	B351	WO	03/009978	A1	American Saw & Mfg. Company	02-06-2003		
	B352	EP	1365141	A1	Siemens Diesel Systems Technology VDO	11-26-2003		
	B353	EP	1340605	A1	Mitsuboshi Diamond Industrial Co., Ltd.	09-03-2003		
	B354	EP	1083946	B1	Blue Medical Devices B.V.	12-03-2003		
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	B356	WO	02/090461	A1	Gorokhovskiy, Vladimir	11-14-2002		
	B357	WO	02/062714	A2	Honeywell, Inc.	08-15-2002		
	B358	WO	02/054454	A2	Lam Research Corporation	07-11-2002		
	B359	WO	02/44440	A1	Essilor International	06-06-2002		
	B360	WO	02/32625	A2	3M Innovative Properties Company	04-25-2002		
	B361	WO	02/24603	A1	Schlumberger Canada Limited	03-28-2002		
	B362	WO	02/24601	A1	Camco International (UK) Limited	03-28-2002		
	B363	WO	02/13188	A1	Koninklijke Philips Electronics N.V.	02-14-2002		
	B364	WO	02/006875	A1	3M Innovative Properties Company	01-24-2002		
	B365	EP	1219464	A2	Fuji Photo Film Co., Ltd.	07-03-2002		
	B366	EP	1190791	A3	Camco International (UK) Limited	04-03-2002		
	B367	EP	0971812	B1	Upper Innovation AB	10-23-2002		
	B368	EP	1018291	B1	Minnesota Mining and Manufacturing Company	10-02-2002		
	B369	EP	0893677	B1	Helix Technology Corporation	01-16-2002		

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**INFORMATION DISCLOSURE
 STATEMENT BY APPLICANT**

Date Submitted: January 19, 2006

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Sheet 12 of 28

Complete if Known

Application Number 10/823,773
 Filing Date April 14, 2004
 First Named Inventor Takahiro Hamada
 Group Art Unit 3747
 Examiner Name Unassigned
 Attorney Docket Number 023971-0407

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Documents	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Office ³	Number ⁴	Kind Code ⁵ (if known)				
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	B371	WO	01/80224	A2	Seagate Technology LLC	10-25-2001		
	B372	WO	01/79583	A2	Technology International, Inc.	10-25-2001		
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	B378	WO	01/14736	A1	Caterpillar Inc.	03-01-2001		
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	B387	WO	00/62327	A2	Gorokhovskiy	10-19-2000		
	B388	WO	00/55385	A1	Teer Coatings Limited	09-21-2000		
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	B390	WO	00/22613	A1	Minnesota Mining And Manufacturing Company	04-20-2000		
	B391	RU	2153782	C1				
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STATEMENT BY APPLICANT**

Date Submitted: January 19, 2006

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Sheet 13 of 28

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Application Number	10/823,773
Filing Date	April 14, 2004
First Named Inventor	Takahiro Hamada
Group Art Unit	3747
Examiner Name	Unassigned
Attorney Docket Number	023971-0407

FOREIGN PATENT DOCUMENTS

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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
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	B399	EP	0893677	B1	Helix Technology Corp.	01-27-1999		
	B400	EP	0624354	B1	Minnesota Mining and Manufacturing Company	12-08-1999		
	B401	EP	0845154	B1	E.I. Du Pont de Nemours and Company and the Regents of the University of California	11-10-1999		
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	B403	EP	0624353	B1	Minnesota Mining and Manufacturing Company	02-24-1999		
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Sheet 14 of 28

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Application Number	10/823,773
Filing Date	April 14, 2004
First Named Inventor	Takahiro Hamada
Group Art Unit	3747
Examiner Name	Unassigned
Attorney Docket Number	023971-0407

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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
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	B420	WO	96/05333	A1	Minnesota Mining and Manufacturing Company	02-22-1996		
	B421	EP	0656458	A3	Baker Hughes Incorporated	06-07-1995		
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	B429	EP	0378378	B1	Ford Motor Company Limited; Ford France S.A. B.P.; Ford-Werke Aktiengesellschaft	01-04-1995		
	B430	EP	0621136	A2	Xerox Corporation	10-26-1994		
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	B433	EP	0546824	A1	American Telephone and Telegraph Company	06-16-1993		
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				Application Number	10/823,773
				Filing Date	April 14, 2004
				First Named Inventor	Takahiro Hamada
				Group Art Unit	3747
				Examiner Name	Unassigned
Sheet 15 of 28				Attorney Docket Number	023971-0407

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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
	B440	CA	2009582		McDonnell Douglas Corporation	08-24-1990		
	B441	WO	89/06708	A1	Anttila et al.	07-27-1989		
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	10/823,773
Date Submitted: January 19, 2006				Filing Date	April 14, 2004
(use as many sheets as necessary)				First Named Inventor	Takahiro Hamada
				Group Art Unit	3747
				Examiner Name	Unassigned
Sheet	16	of	28	Attorney Docket Number	023971-0407

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ⁶
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Examiner Signature		Date Considered	
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

Date Submitted: January 19, 2006

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Sheet 17 of 28

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Application Number	10/823,773
Filing Date	April 14, 2004
First Named Inventor	Takahiro Hamada
Group Art Unit	3747
Examiner Name	Unassigned
Attorney Docket Number	023971-0407

U.S. PATENT DOCUMENTS

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				Group Art Unit	3747
				Examiner Name	Unassigned
				Attorney Docket Number	023971-0407
Sheet	18	of	28		

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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
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				Group Art Unit	3747
				Examiner Name	Unassigned
Sheet	19	of	28	Attorney Docket Number	023971-0407

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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
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				Group Art Unit	3747
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	B615	DE	100 61 397	A1	Desch Antriebstechnik GmbH 7 Co. KG	05-08-2002		Abs

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	B622	"Carbon Steels for Machine Structural Use", Japanese Industrial Standard (JIS G 4051), 1979, pages 1381-1383.		
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	B631	International Standard "Application of Carbides for Machining by Chip Removal - Designation of the Main Groups of Chip Removal and Groups of Application," ISO 513, (1975), pp. 67-69		
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				Application Number	10/823,773
				Filing Date	April 14, 2004
				First Named Inventor	Takahiro Hamada
				Group Art Unit	3747
				Examiner Name	Unassigned
				Attorney Docket Number	023971-0407
Sheet	24	of	28		

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ⁶
	B639	M. KANO et al., "The Effect of ZDDP and MODTC Additives on Friction Properties of DLC and Steel Cam Follower in Engine Oil", Abstracts of Papers from 2nd World Tribology Congress, September 3-7, 2001, page 342.		
	B640	Patent Abstracts of Japan, Vol. 1996, No. 09, 30 September 1996, JP 08-128448, 21 May 1996.		
	B641	Patent Abstracts of Japan, Vol. 2000, No. 01, 31 January 2000, JP 11-287329, 19 October 1999.		
	B642	Patent Abstracts of Japan, Vol. 2000, No. 09, 13 October 2000, JP 2000-170768, 20 June 2000.		
	B643	PCT/IB2004/002552		
	B644	"Stainless Steel Bars", Japanese Industrial Standard (JIS G 4303), pages 1457-1477.		
	B645	"Standard Practice for Codification of Certain Nonferrous Metals and Alloys, Cast and Wrought ¹ ", ASTM International, Designation: B 275-02, June 2002, pages 1-7.		
	B646	"Standard Test Method for Calibration and Operation of the Falex Block-on-Ring Friction and Wear Testing Machine", ASTM Designation: D2714 – 88, 01/1989, pages 383-386.		

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	B647	"Standard Test Method for Separation of Representative Aromatics and Nonaromatics Fractions of High-Boiling Oils by Elution Chromatography", ASTM Designation: D 2549 – 91 (Reapproved 1995), pages 895-900.	
	B648	STEVE J. BULL et al., "High-Performance Diamond and Diamond-like Coatings", JOM, April 1995, pages 16-19, Vol. 47, No. 4, XP 000500980	
	B649	Patent Abstracts of Japan, Vol. 2003, No. 12, 5 December 2003, JP 2004-155891, 3 June 2004	

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U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
	B650	4,933,058		Bache et al.	06-12-1990	
	B651	5,032,243		Bache et al.	07-16-1991	
	B652	5,295,305		Hahn et al.	03-22-1994	
	B653	5,205,305		Yamakita	04-27-1993	
	B654	5,497,550		Trotta et al.	03-12-1996	
	B655	5,669,144		Hahn et al.	09-23-1997	
	B656	6,684,513	B1	Clipstone et al.	02-03-2004	
	B657	6,866,894	B2	Trankiem et al.	03-15-2005	
	B658	5,040,501		Lemelson	08-20-1991	
	B659	5,067,826		Lemelson	11-26-1991	
	B660	5,284,394		Lemelson	02-08-1994	
	B661	5,714,202		Lemelson et al.	02-03-1998	
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	B663	5,096,352		Lemelson	03-17-1992	
	B664	5,288,556		Lemelson	02-22-1994	
	B665	5,456,406		Lemelson	10-10-1995	
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	B667	5,616,372		Conley et al.	04-01-1997	
	B668	5,688,557		Lemelson et al.	11-18-1997	
	B669	5,740,941		Lemelson	04-21-1998	
	B670	5,786,038		Conley et al.	07-28-1998	
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	B673	4,367,130		Lemelson	01-04-1983	
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	B676	4,859,493		Lemelson	08-22-1989	
	B677	4,874,596		Lemelson	10-17-1989	
	B678	5,021,628		Lemelson	06-04-1991	
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	B680	5,552,675		Lemelson	09-03-1996	
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	B682	5,871,805		Lemelson	02-16-1999	
	B683	4,755,237		Lemelson	07-05-1988	
	B684	5,255,929		Lemelson	10-26-1993	
	B685	5,360,227		Lemelson	11-01-1994	
	B686	5,866,195		Lemelson	02-02-1999	
	B687	6,969,198	B2	Konishi et al.	11-29-2005	
	B688	2004/0261614	A1	Hamada et al.	12-30-2004	
	B689	2004/0241448	A1	Kano et al.	12-02-2004	

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		Number	Kind Code ² (if known)			
	B690	2004/0242435	A1	Nishimura et al.	12-02-2004	
	B691	2005/0005892	A1	Nishimura et al.	01-13-2005	
	B692	2005/0084390	A1	Ueno et al.	04-21-2005	
	B693	2005/0089685	A1	Hamada et al.	04-28-2005	
	B694	2005/0100701	A1	Hamada et al.	05-12-2005	
	B695	2005/0064196	A1	Martin et al.	03-24-2005	
	B696	2005/0025975	A1	Okamoto et al.	02-03-2005	
	B697	2005/0056241	A1	Nomura et al.	03-17-2005	
	B698	2005/0082139	A1	Ishikawa et al.	04-21-2005	
	B699	2005/0188942		Hamada et al.	09-01-2005	
	B700	10/911,741		Ueno	05-05-2004	

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	B701	RONKAINEN, HELENA, "Tribological Properties of Hydrogenated and Hydrogen-Free Diamond-Like Carbon Coatings," Dissertation for the Degree of Doctor of Science in Technology, VTT Publications No. 434	

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